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GB 1400509
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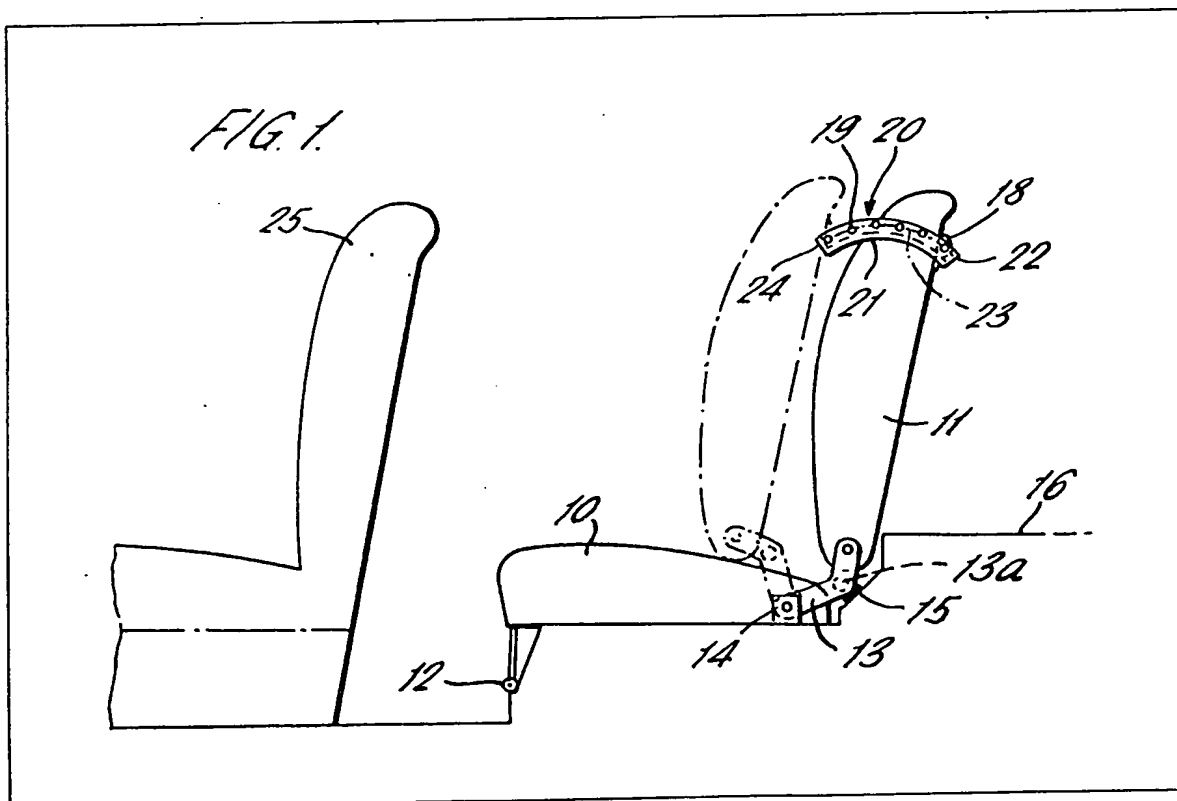
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(54) Vehicle seats with movable backs

(57) A vehicle seat is disclosed in which the bottom of the seat back (11) is pivotally attached to one end of a link (13), the other end of the link being pivotally attached to the vehicle structure, and the top of the seat back is provided with a bolt (18) which can engage an arcuate guide (20) in any of a plurality of holes (19). When engaged in the rear hole, the seat back is held in a normal, upright position, (shown in full lines) and when engaged in the forward hole, the seat back is held in a forward upright position (shown in dashed lines) to increase the luggage space behind the seat whilst leaving sufficient space on the seat for a child or small person. The bolt (18) can be disengaged from the guide (20) to permit the seat back to be pivoted forwardly to a generally horizontal position to provide additional luggage space.

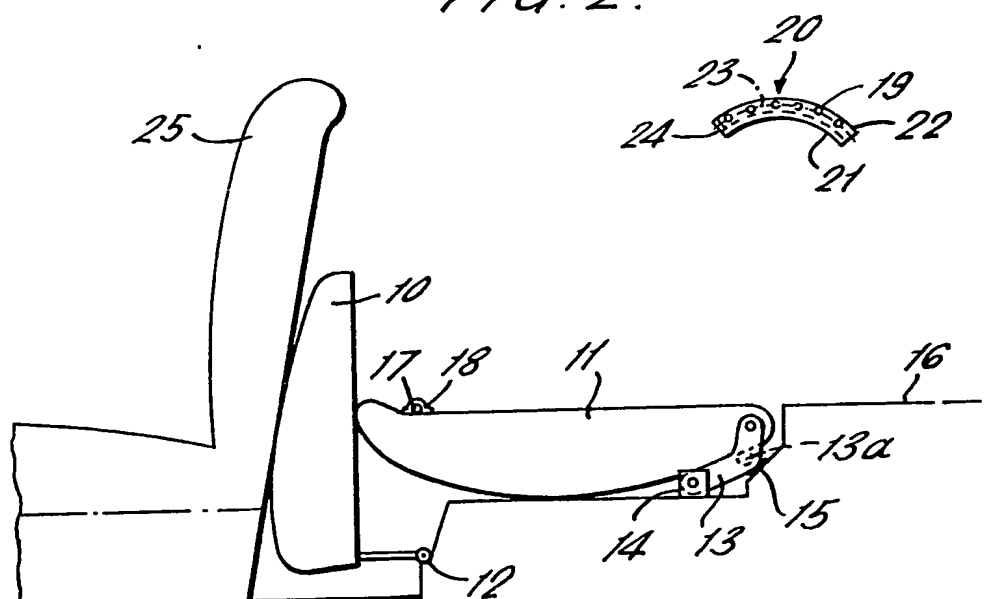


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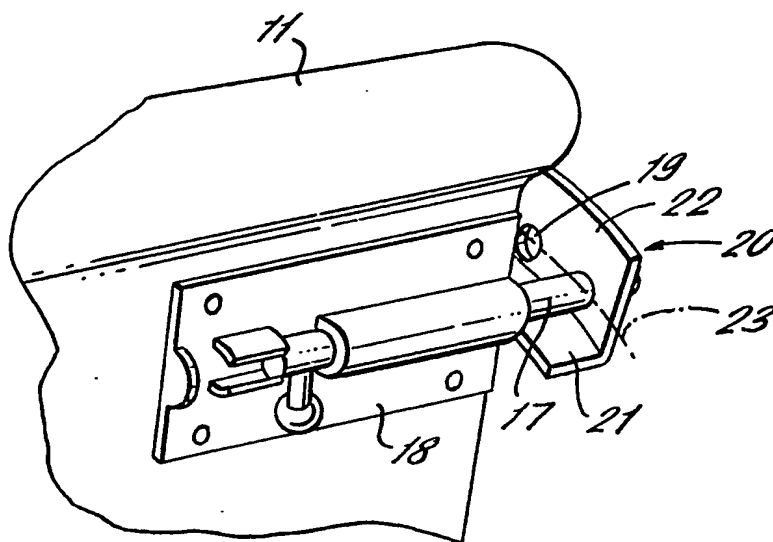
FIG. 1.



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FIG. 3.



SPECIFICATION

Vehicle seats with movable backs

- 5 This invention relates to vehicles having seats with movable backs.

According to the present invention, there is provided a vehicle having a seat comprising a seat base and a seat back, means for mounting the seat back for movement between a normal, generally upright position adjacent the rear end of the seat base and a forward, generally upright position part way along the seat base and means for holding the seat back in each of said positions.

- 15 The invention is particularly useful in the case where the seat back forms a front wall of a luggage space behind the seat, said movement of the seat back to the forward position increasing the luggage space behind the seat.
- 20 The forward position of the seat back may be generally parallel to the normal position of the seat base.

- The mounting means may include means for guiding the seat back adjacent the bottom thereof for movement about an arcuate path. The guide means may comprise at least two links spaced across the seat back each link having a pair of spaced pivotal connections, one to the vehicle structure and the other to the seat back adjacent the bottom thereof.
- 30 The links may be rigidly connected with each other by a transverse brace.

- The mounting means may further include means for guiding the seat back adjacent the top thereof for movement about an arcuate path parallel to the first-mentioned arcuate path. This latter guide may comprise at least one arcuate guide mounted on the vehicle structure and a follower mounted on the seat back adjacent the top thereof and engaging the arcuate guide.

- 40 The holding means may comprise at least one releasable catch for holding the seat back selectively in the normal position and the forward position. The catch may be constituted by the follower being a transversely slidable bolt engageable in either of a pair of spaced recesses formed adjacent the guide.

- Means may also be provided for holding the seat back in at least one intermediate position between the normal and forward positions. The intermediate holding means may be formed by the bolt being engageable in at least one further recess formed adjacent the guide, the recesses being in an arcuate configuration.

- The seat back may be mounted also for forward tilting movement to a generally horizontal position. More particularly, the guide may have forward stop engageable by the bolt to limit the forward position of the backrest, the bolt being slidable to disengage the stop to permit the backrest to be tilted to the horizontal position.

- 60 An embodiment of the invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a diagrammatic side elevation view of a rear seating arrangement of a vehicle according to

- 65 the present invention;

Figure 2 is a diagrammatic side elevation view of the rear seating arrangement as shown in *Figure 1* but in a different position, and

- 70 *Figure 3* is a perspective view of part of the seating arrangement shown in *Figure 1*.

- A rear seating arrangement, particularly but not exclusively suitable for a vehicle having a rear opening door or tailgate comprises a seat cushion 10 and a backrest 11 extending substantially the width of the vehicle. The base of the seat cushion is pivotably connected at its forward end 12 to part of the vehicle body structure supporting the seat cushion when in use. Each outward side of the backrest is pivotably connected at the lower end thereof to one of a pair of link arms 13, the other ends of which are pivotably connected to respective mounting brackets 14 secured to the vehicle body side structure. The link arms 13 are connected together in parallel spaced apart relationship by a transversely extending rod or tube 13a, the ends of which are rigidly secured to respective link arms 13 intermediate the ends thereof, e.g. by welding, for pivotable movement in unison of the link arms in an arc extending on either side of a vertical line passing through the centre of the lower pivot point and above it and in a vertical plate parallel to the longitudinal axis of the vehicle. In the rearwardly extending position of the link arms 13, portions of the rear edges thereof intermediate the ends abut resilient stops 15 secured to an adjacent portion of the vehicle body structure forward of the normal load carrying platform 16 extending rearwardly from the rear seat backrest to the rear of the vehicle body structure.

- 100 The backrest 11 is secured in position by means of a pair of horizontal transversely extending slidable bolt rods 17 mounted for axial movement in respective brackets 18 secured to the rear face of the backrest adjacent the top of each outer side thereof. In the fully outwardly extended position of the bolt rods 17 the outer ends of the rods engage into a selected one of a number of spaced-apart holes 19 in respective elongate guide rails 20 secured to the vehicle body side structure. The inboard ends of the bolt rods 17 may be formed to facilitate individual manual axial movement thereof as shown, or may be connected together for simultaneous operation by a single control.

- Extending fore-and-aft and parallel to the longitudinal axis of the vehicle, the guide rail 20 on each side of the vehicle is of L-section with the lower limb 21 extending inboard of the vehicle and the edge of the limb adjacent the side of the backrest, whilst the upper limb 22 is in a vertical plane above it. For a purpose to be described later, each guide rail 20 is curved in a vertical plane such that the upper surface of the lower limb 21 forms a convex guideway for the outboard end of bolt rod 17. The holes 19 are spaced along a common pitch circle line 23 in the vertical limb 22, the radius of curvature of the pitch circle line being equal to the radius of arc between pivot centres of the link arms 13 with all other radii of curvature in the vertical plane on the rail corresponding proportionally therewith: The spacing of holes 19 along the pitch circle line 23 corresponds to
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predetermined angular positions of the link arms 13 such that for each selected forward displacement of the backrest, the angle thereof from the vertical is parallel, of substantially parallel, to the normal most rearward in use position as shown in full line in Figure 1. A web 24 is formed between the lower and upper limbs of the guide rails at the front ends thereof and just forwardly of the front hold 19 to act as a stop for the bolt rod 17 and to define the limit of forward displacement of the backrest parallel, or substantially parallel, to its normal rearmost position.

From the foregoing therefore, it can be seen that an extension of the luggage space normally available whilst still providing limited rear seating accommodation suitable for small children or juvenile passengers can be obtained by withdrawing bolt rods 17 sufficiently to disengage them from the rearmost holes 19 and with the free ends of the bolt rods still overlaying the lower limbs of the guide rails, the backrest can be displaced forwardly partway across the seat cushion 10 by pivotable movement of the link arms 13 such that the bolt rods come into register with the required holes 19 and are extended to engage therein. The maximum extension of the luggage space under these conditions would of course be when the link arms 13 have been pivotably moved forwardly such that the bottom edge of the backrest 11 abuts the seat cushion 10, the bolt rods 17 are engaged in the foremost holes 19 of the guide rails 20 and are closely behind the stop webs 24. Such a position is as shown in dotted line in Figure 1.

When it is required to obtain the maximum possible luggage space as shown in Figure 2, the seat cushion 10 is swung upwardly and forwardly about its pivot 12 until it rests against the rear face of the front seat or seats 25. The bolt rods 17 are then fully retracted so that they are clear of the stop webs 24 and the backrest is then swung forwardly and downwardly about its pivotable connections with the top ends of link arms 13 to a substantially horizontal position behind the seat cushion 11 and with the front of the backrest resting on the body structure normally supporting the seat cushion. During this operation, the link arms remain in their rearwardly extending position abutting the stops 14.

Various modifications can be made to the embodiment of the invention described hereinbefore. For example, the extension of the luggage space provided by displacing the backrest forwardly to the maximum position shown in dotted line in Figure 1 can be further increased by suitable extending the guide rails 20 forwardly and providing additional holes 19 in the upper limb thereof such that from the foremost displaced position as shown in Figure 1, the backrest can be swung forwardly about its pivotable connections with link arms 13 to assume a more upright position and thus increase the available luggage space behind it. Additionally, a dependent flap of suitable flexible material extending substantially the width of the backrest may be secured along its upper edge to the rear face of the backrest above the pivot axis thereof and extend downwardly and then outwardly rearwards to overlay the front of the load carrying platform a sufficient

amount such that when the backrest is forwardly displaced or in an out of use position, as shown in Figure 1 and 3 respectively, the flap bridges the gap thus created between the backrest and the front of the load carrying platform.

Where it is not required to provide intermediate positions for forward displacement of the seat backrest, the arcuate guide rails 20 may each be replaced by two separate elements secured to the vehicle structure on the respective side thereof for supporting and securing the top end of the backrest selectively in the normal position and the maximum forwardly displaced position.

It will also be appreciated that whilst said embodiment has been described in relation to a vehicle having a rear opening door or tailgate, the invention can include other kinds of vehicles, as for example a passenger saloon having a luggage boot and cover extending rearwardly of and below the rear window.

CLAIMS

1. A vehicle having a seat comprising a seat base and a seat back, means for mounting the seat back for movement between a normal, generally upright position adjacent the rear end of the seat base and a forward, generally upright position partway along the seat base and means for holding the seat back in each of said positions.

2. A vehicle as claimed in claim 1, wherein the seat back forms a front wall of a luggage space behind the seat, said movement of the seat back to the forward position increasing the luggage space behind the seat.

3. A vehicle as claimed in claim 1 or claim 2, wherein the forward position of the seat back is generally parallel to the normal position of the seat back.

4. A vehicle as claimed in any one of the preceding claims wherein the mounting means includes means for guiding the seat back adjacent the bottom thereof for movement about an arcuate path.

5. A vehicle as claimed in claim 4, wherein the means for guiding the seat back adjacent the bottom thereof comprises at least two links spaced across the seat back each link having a pair of space pivotal connections, one to the vehicle structure and the other to the seat back adjacent the bottom thereof.

6. A vehicle as claimed in claim 5 wherein the links are rigidly connected with each other by a transverse brace.

7. A vehicle as claimed in any one of claims 4 to 6, wherein the mounting means further includes means for guiding the seat back adjacent the top thereof for movement about an arcuate path parallel to first-mentioned arcuate path.

8. A vehicle as claimed in claim 7 wherein the means for guiding the seat back adjacent the top thereof comprises at least one arcuate guide mounted on the vehicle structure and a follower mounted on the seat back adjacent the top thereof and engaging the arcuate guide.

9. A vehicle as claimed in any one of the preceding claims, wherein the holding means com-

prises at least one releasable catch for holding the seat back selectively in the normal position and the forward position.

10. A vehicle as claimed in claim 9 as dependent on claim 8, wherein the catch is constituted by the follower being a transversely slidable bolt engageable in either of a pair of spaced recesses formed adjacent the guide.

11. A vehicle as claimed in any one of the preceding claims, further comprising means for holding the seat back in at least one intermediate position between the normal and forward positions.

12. A vehicle as claimed in claim 11 as dependent on claim 10 wherein the intermediate holding means is formed by the bolt being engageable in at least one further recess formed adjacent the guide, the recesses being in an arcuate configuration.

13. A vehicle as claimed in any one of the preceding claims, wherein the seat back is mounted also for forward tilting movement to a generally horizontal position.

14. A vehicle as claimed in claim 13 as dependent on claim 10 wherein the guide has a forward stop engageable by the bolt to limit the forward position of the backrest, the bolt being slidable to disengage the stop to permit the backrest to be tilted to the horizontal position.

15. A vehicle substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

New claims or amendments to claims filed on 29th March 1982

Superseded claims 1 - 4, 11- 15

New or amended claims:-

CLAIMS

1. A vehicle having a seat comprising a seat base and a seat back, means for mounting the seat back for movement between a normal; generally upright position adjacent the rear end of the seat base and a forward, generally upright position partway along the seat base and for forward tilting movement to a generally horizontal position and means for holding the seat back in each of said upright positions, said holding means being releasable to permit the seat back to be moved between said generally upright positions and to be tilted forwardly to said generally horizontal position.

2. A vehicle as claimed in claim 1, wherein the seat back forms a front wall of a luggage space behind the seat, said movement of the seat back to the forward position increasing the luggage space behind the seat.

3. A vehicle as claimed in claim 1 or claim 2, wherein the forward position of the seat back is generally parallel to the normal position of the seat back.

4. A vehicle as claimed in any one of the preceding claims wherein the mounting means includes means for guiding the seat back adjacent the bottom thereof for movement about an arcuate path.

11. A vehicle as claimed in claim 10 wherein the

guide has a forward stop engageable by the bolt to limit the forward position of the backrest, the bolt being slidable to disengage the stop to permit the backrest to be tilted to the horizontal position.

12. A vehicle as claimed in any one of the preceding claims, further comprising means for holding the seat back in at least one intermediate position between the normal and forward positions.

13. A vehicle as claimed in claim 12 as dependent on claim 10 or 11 wherein the intermediate holding means is formed by the bolt being engageable in at least one further recess formed adjacent the guide, the recesses being in an arcuate configuration.

14. A vehicle substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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